Your name (please print)___________________________________

Class time (circle one):  8:00       9:30

ECO201, Fall 2000
Prof. Bill Even

Second Midterm Examination

**Directions**

1. Do not open the exam until you are instructed to begin.

2. There are 35 fill in the blank/multiple choice questions worth 3 points each. A series of short answer questions worth 20 points follows. Put all answers to the first 35 questions on the answer sheet attached to the end of the exam. Credit will be given only for answers put in the appropriate space.

3. You have until the end of the class period to complete the exam. No additional time will be provided.
1. Suppose a bank is willing to lend you money at 6% interest. If you promised to pay the bank $1000 per year for 3 years with the first payment one year from today, how much would the bank be willing to lend you today? (Round your answer to the nearest dollar).

2. Suppose you deposit $1000 in a bank today and it earns 8% interest annually. If the interest is allowed to compound, what would your balance be in 15 years? (Round your answer to the nearest dollar).

3. Consider a one year bond with a maturity value of $1000 and a coupon rate of 12%. If the bond sells for $1050 today, what is the yield on the bond? (Round your answer to the nearest 1/10 of a percent, e.g. 11.9%).

4. Suppose that a person invests 40 hours per week in her business but does not pay herself an explicit salary and owns the business property (i.e. does not pay rent on the property). Holding other things constant, her economic profits would increase if:
   a. the rent that she could receive if she leased her property out to some other company increases.
   b. the amount she could earn for her labor services elsewhere rises.
   c. the amount she could earn for her labor services elsewhere falls.
   d. both a and b.

5. An advantage of a proprietorship over a corporation is:
   a. the proprietorship has unlimited liability.
   b. the proprietorship receives preferential tax treatment.
   c. the proprietorship is easier to establish legally.
   d. all of the above.
   e. only b and c.
To answer the next 5 questions, suppose that a landscaping company that installs grass sod pays $20 per hour for labor. Its capital is fixed and the implicit rental rate is $50 per hour.

<table>
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<tr>
<th>Number of workers</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Square yards of sod per hour</td>
<td>0</td>
<td>8</td>
<td>20</td>
<td>28</td>
<td>32</td>
<td>34</td>
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6. What is the marginal product (per hour) of the fourth worker?

7. What is the average product of labor (per hour) when there are 4 workers?

8. What is the average total cost of producing 28 square yards per hour? (Give your answer in dollars and cents).

9. What is the marginal cost (per square yard) of increasing production when production is between 28 and 32 square yards per hour?

10. If the price of sod was $7 per square yard, the firm’s hourly profits would (increase, decrease) by ______ if it increased sod production from 28 to 32 square yards per hour.
To answer the next 7 questions, suppose that the perfectly competitive pistachio industry is described by the diagrams below.

BE CAREFUL TO NOTICE THAT THE SCALE FOR QUANTITY IS IN THOUSANDS OR MILLIONS IN THE ABOVE DIAGRAM. MAKE THE APPROPRIATE ADJUSTMENT IN YOUR ANSWERS!

At the current short run equilibrium described in the above diagram
11. How many pounds per month are produced by the typical firm?

12. The firm’s monthly (profits, losses) are __________.

13. How many firms are in the industry?

14. Given the current equilibrium price, if the firm produced 4,000 pounds per month, what would its profits be?

If there are no external economies or diseconomies, in the long run:

15. How many pounds per month will the typical firm produce per month?

16. What will the price per pound of pistachios be?

17. What will economic profits be?
18. If there are strong external diseconomies in the tobacco industry (i.e. an increasing cost industry), a decrease in demand for tobacco would, in the long run, cause:
   a. the LRATC of tobacco farms to drop and a decrease in the price of tobacco.
   b. the LRATC of tobacco farms to rise and a decrease in the price of tobacco.
   c. no change in the LRATC of tobacco farms but a decrease in the price of tobacco.
   d. the LRATC of tobacco farms to rise and an increase in the price of tobacco.

19. Which of the following would be most likely to generate external economies (decreasing costs) in the carpet industry?
   a. when expanded production by carpet companies drives up the prices of fibers used to manufacture carpet.
   b. when there are strong economies of scale in production of the fibers used to manufacture carpet.
   c. when expanded production by carpet companies causes carpet prices to fall.
   d. none of the above.

20. In the short run, a firm will shut down and produce nothing if its product price falls:
   a. below marginal cost.
   b. below average total cost.
   c. below average variable cost.
   d. below average fixed cost.

To answer the next 3 questions, suppose that a farmer is currently producing 50,000 bushels of corn and is faced with the following:

Price=$2 per bushel  ATC=$1.80  AVC=$1.30  MC=$1.50

21. This farmer has a (profit, loss) of ________.

22. If this farmer increased corn production by one bushel, his profits would (increase, decrease) by $________.

23. If this farmer increased corn production, ATC would (increase, decrease) and AVC would (increase, decrease).
   a. increase, increase.
   b. increase, decrease.
   c. decrease, decrease.
   d. decrease, increase.

24. In the long run, we should expect that firms will (enter, exit) this industry and the price of corn will (rise, fall).
   a. enter, rise.
   b. enter, fall.
   c. exit, rise.
   d. exit, fall.
To answer the all questions on this page, refer to the diagram below describing the demand and cost curves for a single-price monopoly that sells cable TV. Assume there are no externalities associated with the sale of cable TV.

If the cable TV company is not regulated and maximizes its profits:

25. what price will it charge?

26. what will the dollar value of profits be?

27. what will be the dollar value of the deadweight loss in the cable TV market?

28. If the MC of providing cable TV dropped below its current level, the profit-maximizing monopolist would:
   a. lower the price of cable
   b. raise the price of cable
   c. not change the price of cable.

29. If the firm “perfectly price discriminates”, how many subscribers will purchase cable?

If the cable TV company is regulated and allowed to earn a “fair return”,

30. it will charge a price of _____ and have _____ subscribers.

31. what will be the deadweight loss?

32. Assuming no externalities, no deadweight loss would exist if the price was set at _____ and ________ subscriptions were sold.

33. Demand is inelastic for prices (above, below) ________.
To answer the next 2 questions, suppose that a local amusement park owner was initially maximizing profits by charging all customers the same price. After doing market research, he discovers that customers from within 20 miles have a price elasticity of demand of 2 whereas customers from more than 20 miles away have a price elasticity of demand of .5.

34. Based on what you know about price discrimination, if the company currently charges everyone the same price and was maximizing profits, it could increase its profits by:
a. raising prices for the local customers and cutting prices for the long distance customers.
b. cutting prices for the local customers and raising prices for the long distance customers.

35. Given the information provided, if the company currently charges everyone the same price, marginal revenue is higher among:
a. long distance customers.
b. local customers.
c. it is impossible to tell without more information.
1. (5 points) Suppose that you are buying a new refrigerator. The purchase price is $1000 but the salesperson is offering you a choice of two discounts. Option A is that if you pay cash today, you will receive a 5% discount off the price of the refrigerator. Option B is that you don’t have to pay anything today, but would pay for the refrigerator in two payments of $500 -- one at the end of this year, and another payment two years from now. Assuming that you have the cash for the refrigerator invested in a money market account that pays 6% interest, should you pick option A or option B? **Justify your analysis with reference to the appropriate numerical calculations. No credit will be given if you just pick option A or B without justification.**

*With option A, the present value of the cost of the refrigerator is $950.*

*With option B, the present value of the cost of the refrigerator is*  
\[
\frac{500}{1.06} + \frac{500}{(1.06)^2} = 916.70
\]

*I would pick option B because the PV of the payments is lower with B than A.*

2. (5 points) The price of prescription drugs has received a great deal of attention in recent years. Some have pointed out that our patent system allows drug companies to charge a price that is far above the marginal cost of manufacture. If the federal government regulated the pharmaceutical industry and forced them to charge a price equal to the marginal cost of manufacturing the drug, how could this actually make consumers worse off in the long run?

*If the government forced pharmaceutical companies to charge a price equal to the marginal cost of manufacture, the company would not be able to cover the fixed costs associated with the research to develop the drug. As a consequence, if firms were forced to charge a price equal to marginal cost, there would be no incentive to do additional research to discover new drugs that might help us in the long run.*
3. In Oxford, Cinergy has a monopoly on the sale of electricity. Suppose that the typical household has a demand curve given by the diagram below.

Suppose the company initially charges $.30 per KW without any connect fee. It decides to change its pricing policy and drops the price to $.10 per KW but charges the household a monthly “connect fee” of $20. (The $20 connect fee must be paid regardless of how much electricity the household uses.)

a. (5 points) Is the change in the pricing policy going to increase or decrease the typical household’s consumer surplus? By how much? Explain.

Consumer’s surplus before = ABC = $8
Consumer’s surplus after = AEG - $20 = $32 - $20 = $12

Consumer’s surplus increases $4

b. (5 points) Is the change in the pricing policy going to increase or decrease producer’s surplus? By how much? Explain.

Producer’s surplus before = BCFE = $16
Producer’s surplus after = $20

Producer’s surplus increases $4.

(Note: The two-part price makes both consumers and producers better off!)
### Answers for 1-35.

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